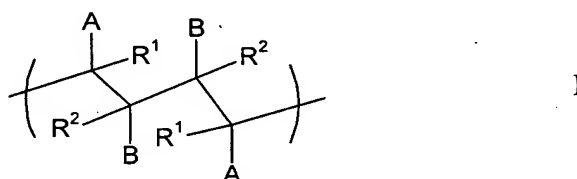


CLAIMS

1. A method of hydraulically fracturing a subterranean formation, comprising the step of:

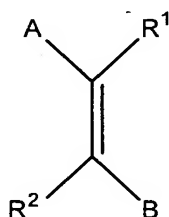
contacting a subterranean formation with a treatment fluid formulation at a flow rate and pressure sufficient to produce or extend a fracture in the formation, wherein the treatment fluid formulation comprises a third polymeric material which comprises a second polymeric material cross-linked by a first polymeric material, wherein said first polymeric material comprises:

(i) a first polymeric material having a repeat unit of formula



wherein A and B are the same or different, are selected from optionally-substituted aromatic and heteroaromatic groups and at least one comprises a relatively polar atom or group and R¹ and R² independently comprise relatively non-polar atoms or groups; or

(ii) a first polymeric material prepared or preparable by providing a compound of general formula



wherein A, B, R¹ and R² are as described above, in an aqueous solvent and causing the groups C=C in said compound to react with one another to form said first polymeric material.

2. A method according to claim 1, wherein said first and second polymeric materials are reacted to form said third polymeric material prior to the treatment fluid formulation being injected via a well bore into the subterranean formation.
3. A method according to claim 1 or claim 2, wherein said treatment fluid formulation has a viscosity at 25°C in the range 50 to 500cp at a shear rate of 100s⁻¹.
4. A method according to any preceding claim, wherein said treatment fluid formulation has a viscosity at 200°F in the range 20 to 100cp, measured at a shear rate of 100s⁻¹.
5. A method according to any preceding claim, wherein said treatment fluid formulation is aqueous and includes at least 90wt% water.
6. A method according to any preceding claim, wherein said treatment fluid formulation includes one or more proppants.
7. A method according to any preceding claim, wherein said treatment fluid formulation includes breaker means for breaking the third polymeric material to reduce its viscosity and facilitate clean-up of the fracture.
8. A method according to claim 7, wherein said breaker means is arranged to cleave chains of said third polymeric material.
9. A method according to claim 7 or claim 8, wherein said breaker means is arranged to have a delayed action and includes means for restricting contact between an active material thereof and said third polymeric material.

10. A method according to any preceding claim 1, which comprises selecting a said first polymeric material; selecting a said second polymeric material which includes a functional group which is able to react in the presence of said first polymeric material to form a third polymeric material; and causing the formation of said third polymeric material by a reaction involving said first and second polymeric materials.

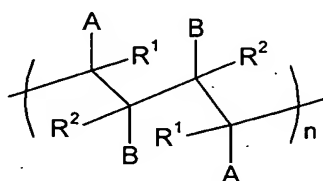
11. A method according to claim 10, wherein the ratio of the wt% of said first polymeric material to the wt% of said second polymeric material selected for preparation of said third polymeric material is less than 0.15 and is at least 0.01.

12. A method according to any preceding claim, wherein the sum in said treatment fluid formulation of the wt% of the first and second polymeric materials selected for preparation of said third polymeric material is at least 1wt% and is less than 8wt%.

13. A method according to any preceding claim, wherein, in the preparation of said third polymeric material, a catalyst is provided for catalysing the reaction of the first and second polymeric materials.

14. A method according to any preceding claim, wherein one of A or B represents an optionally-substituted aromatic group and the other one represents an optionally substituted heteroaromatic group.

15. A method according to any preceding claim, wherein said first polymeric material is of formula:



wherein n an integer.

16. A method according to any preceding claim, wherein said second polymeric material is selected from optionally substituted polyvinyl alcohol, polyvinyl acetate, and polyalkylene glycols.

17. A method according to any preceding claim, wherein said polymeric material includes at least one vinyl alcohol/vinyl acetate copolymer.

18. A method of preparing a treatment fluid formulation comprising:
selecting a first polymeric material and a second polymeric material as described according to any preceding claim; and

causing the formation of a said third polymeric material by a reaction involving said first and second polymeric materials.

19. A method according to claim 18, which comprises contacting said first and second polymeric materials at a weight ratio of first to second in the range 0.025 to 0.067; and contacting the third polymeric material which forms with 5 to 20wt% proppants.

20. A treatment fluid formulation comprising:
water;

a third polymeric material according to any preceding claim; and

one or more proppants.

21. A formulation according to claim 20, which comprises 1 to 5wt% of said third polymeric material, 65 to 90wt% water and 5 to 30wt% of proppants.

22. The use of a treatment fluid formulation as described in any preceding claim in hydraulically fracturing a subterranean formation.

23. A method of breaking a third polymeric material as described in any preceding claim, the method comprising providing a formulation comprising said third polymeric material and a breaker means and causing said breaker means to change its state in order to release an active breaker material arranged to break the third polymeric material.

24. An encapsulated breaker means for a third polymeric material as described in any preceding claim per se.

25. A method of recovering oil from a subterranean formation comprising:

- hydraulically fracturing a subterranean formation as described according to any of claims 1 to 19;
- allowing an area fractured to close down whilst being propped by a proppant; wherein as a result of said close down, a breaker means releases an active material which is arranged to lower the viscosity of the treatment fluid formulation of the first aspect; and
- allowing oil to flow to the surface after the viscosity of the treatment fluid formulation has been lowered.